

EXPERT TO WEB PAGE, TECHNOLOGY TO THE RESCUE

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ABSTRACT

Phase One of the Webwings (www.webwings.org) site was developed cooperatively by the Academy of Model Aeronautics and the Outreach programs of the Indiana Academy, Ball State University. The purpose of this web site is to use aviation concepts to provide middle-school teachers with web-based materials to assist in the teaching of mathematics and science. Phase Two will provide web-based Single Concept Learning Modules that demonstrate how to build and fly various types of model aircraft. Experts are video-taped building and flying models; then, using present technology, these tapes are changed into web pages.

BACKGROUND

The Academy of Model Aeronautics (AMA) is the organization for those who fly all types of model aircraft. At present in the United States there are about 160,000 members and 2600 organized clubs. As a non-profit organization, one of the important tenets of the organization's mission statement is education. The Education Committee of the AMA is deeply involved in educational pursuits. Many AMA clubs are presently working with local youth groups and schools to introduce aviation through modeling. Presentations are made by committee members at national science teacher conferences, with hands-on workshops provided. The AMA web site www.modelaircraft.org provides links to many successful school-based programs.

Ball State University, through the outreach programs of the Indiana Academy, is

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one of the leading institutions in providing video and web-based educational programs for schools. Their expertise in developing web-based materials has led to the success of phase one of the Webwings web site.

TODAY

Webwings has proven to be a valuable teaching tool for students and teachers in the classroom. Using each of the ten concepts in the first site, a teacher can build entire lessons using the curriculum material. The individual modules provide definitions of the basic scientific concepts, some pre-lab, in-lab, and post-lab experiments to demonstrate how these concepts actually work, and an evaluation section to test a student's retained knowledge after the lesson.

Recent experience using Webwings with a partner school in Schenectady, New York has proven the value of this series of web sites.

The Office of Outreach Programs used the Webwings site as a jumping off point for a live "electronic field trip" called *How Things Fly*. The program was developed with the National Air and Space Museum and shown to more than 9 million students nationwide.

In preparing curriculum for the *How Things Fly* field trip, a group of teachers in Schenectady, New York were engaged to make lesson plans for the program. Several were familiar with basic science but not the complex physics concepts required to understand flight. The teachers used the Webwings site as a tool to begin the process of researching and understanding these concepts. From this study, they were able to develop independent material that was used both for the electronic field trip in on-air demonstrations, and also for a companion web site called *How Things Fly*. That site links to the Webwings site to offer visitors the additional material provided there.

The content for Webwings was created by Don Hey, and Allison Bell over the course of several months. Each module was discussed at length and appropriate curricula developed around the central topic. From these notes, the web pages themselves, all 187 of them, were written, with graphics and animations added to exemplify the content. Once the content of each module was complete, the post-lab activities (quiz and discussion questions) were added, based on the actual content of the module. The completed module was added to the site and made available to the public.

The goal of the Webwings program, making the physics of flight and model aviation interesting and understandable to middle school students, was achieved through this

process. Millions of students have been able to learn about the concepts and will have additional resources on how to implement them using model aviation with the development of the second phase of Webwings.

Communications from teachers using the Webwings site have had one common thread: "What do we do next?" Many have expressed the need for assistance in actually building and flying small model aircraft. Some schools have been fortunate to have local modelers who are willing to come into the school and help with such a project. Phase two of Webwings is an attempt to make available to anyone experts who can demonstrate the "how to" of model building and flying.

The problem is that the experts are not always available, nor do they have the skills to produce a web page or develop a scripted presentation. Technology to the rescue! Experts can be asked to do their thing and allow themselves to be video taped. Using the computer technology now available this tape can be used to prepare a Single Concept Learning Module for all to use.

The steps to produce the finished web page are as follows. The video from the expert is reviewed and the spoken words are transcribed to text. This transcribed text is then edited for clarity and sequence before becoming the web page text. The video is digitized so that still images or very short (5 five to ten seconds) video clips can be inserted into the text portion of the page. This process, although time consuming, lets the web production team produce an informative and educationally sound web page.